

MICKSIOPS, A NEW GENUS OF SMALL MINNOW MAYFLIES (EPHEMEROPTERA: BAETIDAE) FROM AFRICA^{1,2}

W. P. McCafferty³, C. R. Lugo-Ortiz³, H. M. Barber-James⁴

ABSTRACT: The new genus *Micksiops* is established for the African species *M. bicaudatus* (Gillies), n. comb. This species is known from Guinea, and undescribed species of *Micksiops* have been seen from Kenya and South Africa. In the larval stage, characters of the labium, the single row of denticles, lack of subtending setae on the claws, and the lack of armature on the dorsal thorax and abdomen distinguish the new genus from *Acanthiops*. The condition of the claws and caudal filaments, along with several other characteristics, will distinguish the larvae of *Micksiops* from *Afroptilum* s.s. and its cognates.

This work is part of the revision of those Afrotropical species of the mayfly family Baetidae that historically have been known as *Afroptilum* Gillies, and previous to that as *Centropetium* Eaton. Other revisionary works on this subject have been contributed by Wuillot and Gillies (1994), McCafferty and de Moor (1995), Lugo-Ortiz and McCafferty (1996a,b,c, 1997a,b), and Barber-James and McCafferty (1997).

McCafferty and de Moor (1995) synonymized what had been known as the subgenus *Afroptiloides* Gillies of the genus *Afroptilum* with the genus *Acanthiops* Waltz and McCafferty. Barber-James and McCafferty (1997) indicated that the type of *Afroptiloides* and all species previously assigned to it, except one, were assignable to *Acanthiops*. That one exception is *Afroptilum bicaudatum* Gillies, originally described from adult and larval material from Guinea (Gillies 1990). *Afroptilum bicaudatum* does not share defining apomorphies with *Acanthiops*, as was pointed out by Barber-James and McCafferty (1997). This species also cannot be placed with *Afroptilum* s. s. or any other known genera of Baetidae, including those African taxa that now contain former species of *Afroptilum*, i.e., *Bugilliesia* Lugo-Ortiz and McCafferty, *Cheleocloeon* Wuillot and Gillies, *Crassabwa* Lugo Ortiz and McCafferty, *Dabulamanzia* Lugo-Ortiz and McCafferty, and *Dicentropetium* Wuillot and Gillies (see also Lugo-Ortiz and McCafferty 1997b). We therefore describe a new genus herein for *A. bicaudatum*, and other closely related but undescribed species that have been seen from Kenya and South Africa.

The larval type material of *A. bicaudatum* could not be located at the Brit-

¹ Received April 11, 1997. Accepted May 2, 1997.

² Purdue Agricultural Research Program Journal No. 15388.

³ Department of Entomology, Purdue University, West Lafayette, IN 47907.

⁴ Albany Museum, Somerset Street, Grahamstown 6140, South Africa.

ish Museum, where it was to have been deposited. Because this taxon is so distinct but unplaceable in the current nomenclature and because there are additional closely related species from Africa to be described by other authors, we feel it is important to erect a genus at this time. Such a description is also one of the final necessary revisions to the species formerly known as *Afroptilum*. We are pleased to name this genus after M. T. (Mick) Gillies, who has contributed significantly to our knowledge of the African Ephemeroptera fauna.

Micksiops McCafferty, Lugo-Ortiz, and Barber-James, NEW GENUS

Larva. Head: Antennae relatively long, about four times length of head. Labrum (Fig. 1) broadly rounded in anterior half with broad emargination in medial third of distal margin. Left mandible (Fig. 2) with incisors fused; prosthema robust; tuft of setae absent. Right mandible (Fig. 3) with two sets of incisors; prosthema somewhat slender; tuft of setae present between incisors and mola. Maxillae (Fig. 4) relatively robust; palps two segmented, extending to about apex of galealaciniae. Labium (Fig. 5) with glossae shorter than paraglossae; palp segment 1 subequal to segments 2 and 3 combined; palp segment 3 globular and rounded apically, slightly more developed medially than laterally. Thorax: Legs (Fig. 6) with femora without villipore, with row of stout setae along dorsal margin; dorsal setae well developed on tibiae and tarsi of mid- and hindlegs. Tarsal claws (Fig. 7) angular at tip, with single row of distinctive subapical denticles, and without pair of long, subtending setae. Abdomen: Lamellate gills (Fig. 8) present on abdominal segments 1-7, asymmetrical subobovate, with pinnately branched tracheation. Median caudal filament not developed; cerci without row of swimming setae along medial margins.

Male Adult. Head: Eyes well separated and divergent apically. Thorax: Forewing with single marginal intercalaries. Hindwings (Fig. 9) narrow; costal process relatively large and compound, with straight and more laterally extended basal node and somewhat curved, slightly larger and distally oriented distal node. Genital forceps with short basal segment with somewhat developed medioapical process (Fig. 10); segment 3 narrow as in Figure 11.

Type species. *Micksiops bicaudatus* (Gillies), new combination.

Included species.

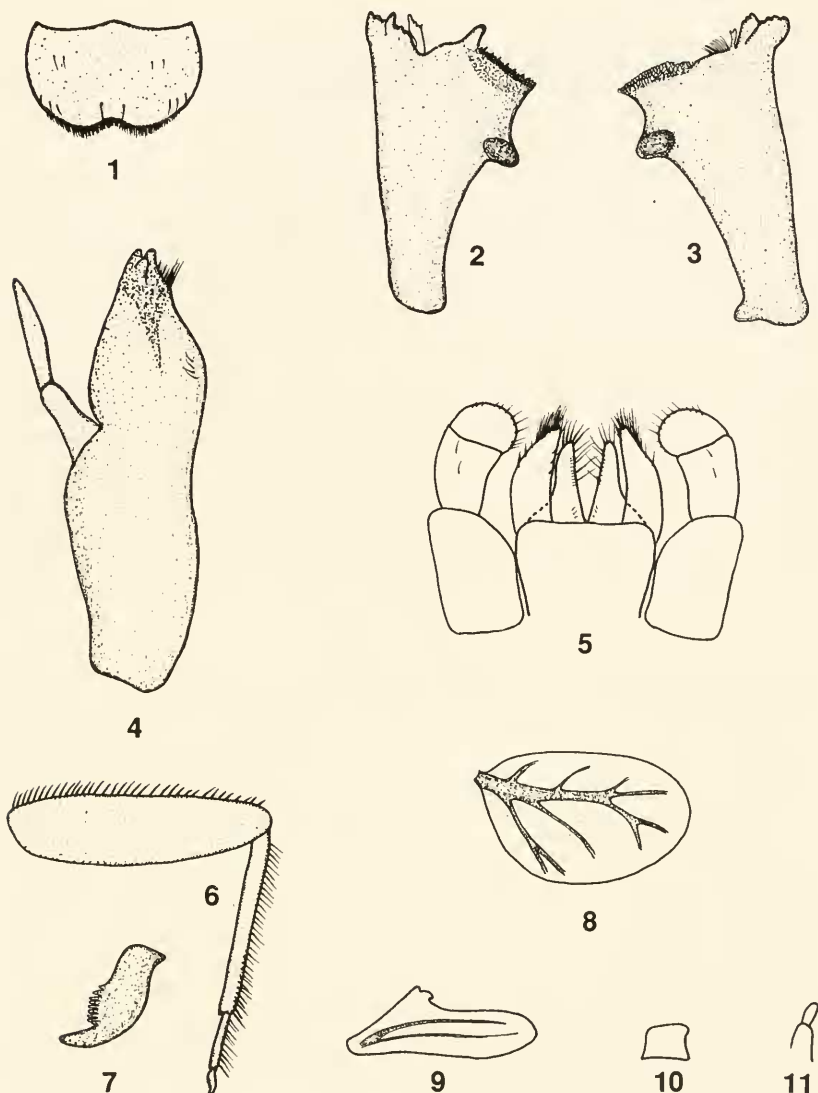
Micksiops bicaudatus (Gillies)

Afroptilum (*Afroptiloides*) *bicaudatum* Gillies, 1990:121.

Distribution. Guinea (*M. bicaudatus*), Kenya (undescribed sp.), and South Africa (undescribed: sp.).

DISCUSSION

Larvae of *Micksiops* can be easily told from larvae of *Acanthiops*, which is another African baetid genus having two-tailed larvae and adults with single marginal intercalaries in the forewings. Diagnostic characteristics of *Micksiops*, include the well-developed and much broader terminal labial palp segment, the unequal glossae and paraglossae, the single rather than double row of claw denticles, the lack of subtending claw setae, and the lack of dorsal armature on the thorax and abdomen. These characters can also be used to differentiate the larvae of *Micksiops* from larvae of *Thraulobaetodes* Elouard and Hideux, which we believe are very closely related to *Acanthiops*. The larvae of *Micksiops* may superficially resemble the two-tailed larvae of the African genera



Figs. 1-11. *Micksiops bicaudatus* [modified from Gillies (1990)]. 1-8. Larva. 1. Labrum (dorsal). 2. Left mandible. 3. Right mandible. 4. Right maxilla. 5. Labium (ventral). 6. Hindleg (details of apex of femur not shown). 7. Hindclaw. 8. Abdominal gill 5. 9-11. Male adult. 9. Hindwing. 10. Left basal segment of forceps, ventral. 11. Left segment 3 of forceps, ventral.

Demoreptus Lugo-Ortiz and McCafferty and *Tanzaniella* Gillies. However, those latter genera are quite unrelated to *Micksiops*, having adults with double marginal intercalaries in the forewings and larvae with a femoral villopore (see Gillies 1991, Lugo-Ortiz and McCafferty 1997c).

Adults of other genera are not well enough described at this time to draw conclusions with respect to adult diagnosis of *Micksiops*. The compound costal process of the *Micksiops* hindwings will distinguish it from some of the baetids with single marginal intercalaries in their forewings, but not all.

Barber-James and McCafferty (1997) suggested that *M. bicaudatus* was possibly a species that shared some common ancestry with the genus *Acanthiops* because of the possession of a tibial row of setae in the larvae of *M. bicaudatus* and ancestral species of *Acanthiops*. However, such setae are variable among and within many genera of Baetidae (e.g., *Baetis* Leach), and Lugo-Ortiz and McCafferty (unpublished) have more recently identified an entire grouping of genera from Africa and Madagascar that share a double row of claw denticles and other characteristics, which contains, among others, *Acanthiops* and *Afroptilum* sensu stricto. *Micksiops* would not be a member of this grouping unless it could be proven to be an entirely aberrant form. A more definite phylogenetic placement of *Micksiops* can not be made at this time.

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